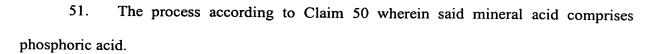


- --36. A catalyst carrier comprising a lattice-layer silicate having an aluminium content of less than 0.3% by weight.
- 37. The catalyst carrier according to Claim 36 wherein the aluminium content is less than 0.03% by weight.
- 38. The catalyst carrier according to any one of Claims 36 or 37 wherein said lattice layer silicate is a smectite.
- 39. The catalyst carrier according to any one of Claims 36 or 37 wherein said latticelayer silicate has a montmorillonite structure.
- 40. The catalyst carrier according to any one of Claims 36 or 37 wherein the cumulative pore volume is between 0.2 and 0.9 ml/g.
- 41. The catalyst carrier according to Claim 40 wherein the cumulative pore volume is between 0.6 and 0.7 ml/g.
- 42. The catalyst carrier according to any one of Claims 36 or 37 in the shape of a spherical body.
- 43. The catalyst carrier according to Claim 42 wherein said spherical body comprises a ball.





- 44. The catalyst carrier according to Claim 42 wherein said spherical body has a diameter of between 1 and 10 mm.
- 45. The catalyst carrier according to Claim 44 wherein said spherical body has a diameter of between 4 and 6 mm.
- 46. The catalyst carrier according to any one of Claims 36 or 37 wherein the pressure resistance is at least 10 N/mm.
- 47. The catalyst carrier according to Claim 46 wherein the pressure resistance is at least 20 N/mm.
- 48. A method of producing a catalyst carrier containing less than 0.3% by weight aluminium comprising impregnating a lattice-layer silicate with an acid, hydrothermally treating the acid-impregnated lattice-layer silicate, and washing the hydrothermally treated, acid-impregnated, lattice-layer silicate with a wash solution selected from the group consisting of acidic solutions, basic solutions, or neutral solutions.
 - 49. The process according to Claim 48 wherein said neutral solution is water.
- 50. The process according to any one of Claims 48 or 49 wherein said acid comprises a mineral acid.





- 52. The process according to any one of Claims 48 or 49 wherein said hydrothermal treatment is conducted at a temperature of between 160 and 300°C and a partial water vapor pressure of between 4 and 80 bar_{abs}.
- 53. The catalyst carrier according to Claim 51 wherein said hydrothermal treatment is conducted at a temperature of between 220 and 260°C and a partial water vapor pressure of between 16 and 25 bar_{abs}.
- 54. The catalyst carrier of any one of Claims 48 or 49 wherein said hydrothermal treatment is conducted, at least in part, during the use of said catalyst carrier in a hydration reaction.
- 55. The process according to any one of Claims 48 or 49 wherein said washing takes place at a temperature of between 20 and 100°C.
- 56. The process according to Claim 55 wherein said washing takes place at a temperature of between 70 and 90°C.
- 57. The process according to any one of Claims 48 or 49 wherein said washing solution comprises hydrochloric acid.



- 58. The process according to any one of Claims 48 or 49 wherein the washed, hydrothermally treated, acid-impregnated, lattice-layer silicate is rinsed with water.
- 59. The process according to any one of Claims 48 or 49 wherein said washing solution comprises water containing up to 30 parts of concentrated hydrochloric acid.
- 60. The process according to Claim 58 wherein said rinsing is conducted until the rinsing water is neutral.
- 61. The process according to any one of Claims 48 or 49 wherein said lattice-layer silicate is purified by burning off adhering organic carbon-containing compounds at a temperature of between 300 and 1000°C prior to any of the steps set forth in Claim 48.
- 62. A catalyst carrier produced by the process according to any one of Claims 48 or 49.
- 63. A process for hydrating an olefin with water in the presence of at least one catalyst made from the catalyst carrier according to any one of Claims 48 or 49.
- 64. The process according to Claim 63 wherein said catalyst contains from 5 to 60% by weight of acid and the hydration is carried out in a reactor with an olefin to water molar ratio of from 0.1 to 0.8, at a gas hourly space velocity of 10 to 100 l_n/min/l_{cat} at a temperature of between 160 and 300°C and a pressure of between 20 and 200 bar_{abs}.

55. The process according to any one of Claims 63 or 64 wherein said acid is phosphoric acid.

- 66. The process according to Claim 65 wherein said phosphoric acid is present in an amount of from 10 to 90% by weight.
- 67. The process according to Claim 66 wherein said phosphoric acid is present in an amount of from 50 to 60% by weight.
- The process according to any one of Claims 63 or 64 wherein the hydration reaction is carried out at a temperature of between 220 and 260°C and a pressure of between 60 and 80 bar_{abs}.
- The process according to any one of Claims 63 or 64 wherein the olefin and said water are present in gaseous form.
- 70. The process according to any one of Claims 63 or 64 wherein said olefin is a C_2 -olefin, a C_3 -olefin, or a mixture thereof.
- 71. The process according to Claim 64 wherein said acid is introduced during the hydration reaction.
 - 72. The process according to Claim 70 wherein said acid comprises phosphoric acid.

73. The process according to Claim 64 wherein acid is continuously injected during the hydration reaction.

74. A catalyst carrier according to any one of Claims 48 or 49 having at least partially a cristobalite-like structure.--

Respectfully submitted,

C. James Bushman Reg. No. 24,810

Date: 12/15/00 Browning Bushman 5718 Westheimer, Suite 1800

Houston, TX 77057 Tel.: (713) 266-5593 Fax: (713) 266-5169

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